

Name: \_\_\_\_\_

## Unit 5 – Trigonometry

### 5.2 – Sine, Cosine & Tangent Functions

#### Introduction to SINE, COSINE and TANGENT Trig. Functions

Use your calculator to find the values of the following to **3 decimal places**:

a.  $\sin(30^\circ)$                       b.  $\sin(60^\circ)$                       c.  $\sin(28^\circ)$                       d.  $\sin(83^\circ)$

e.  $\cos(30^\circ)$                       f.  $\cos(60^\circ)$                       g.  $\cos(28^\circ)$                       h.  $\cos(83^\circ)$

i.  $\tan(30^\circ)$                       j.  $\tan(60^\circ)$                       k.  $\tan(28^\circ)$                       l.  $\tan(83^\circ)$

**NOTE: The value INSIDE the brackets for SIN, COS and TAN must be an ANGLE in DEGREES!**

Use your calculator to find the values of the following to **one decimal place**:

a.  $\sin^{-1}(0.5)$                       b.  $\sin^{-1}\left(\frac{3}{4}\right)$                       c.  $\cos^{-1}(0.866)$                       d.  $\cos^{-1}\left(\frac{11}{15}\right)$

e.  $\tan^{-1}\left(\frac{23}{7}\right)$                       f.  $\tan^{-1}(0.3847)$                       g.  $\sin^{-1}(1.1)$                       h.  $\cos^{-1}(1.1)$

**NOTE: The value INSIDE the brackets for  $\text{SIN}^{-1}$ ,  $\text{COS}^{-1}$  and  $\text{TAN}^{-1}$  is not an ANGLE !**

**Finding the UNKNOWN VALUE in a PROPORTION containing a Trig. Function.**

A. The ANGLE IS **KNOWN**. Find the value of x.

a.  $\sin(30^\circ) = \frac{x}{10}$

b.  $\cos(60^\circ) = \frac{10}{x}$

c.  $\tan(83^\circ) = \frac{7.6}{x}$

B. The ANGLE IS **UNKNOWN**. Find the value of the angle,  $m$ .

a.  $\sin(m) = \frac{5}{10}$

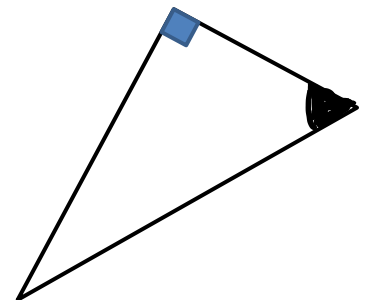
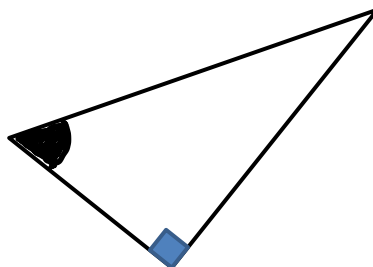
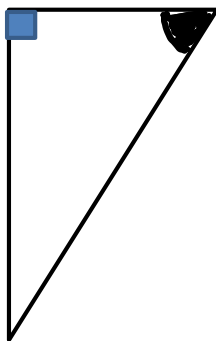
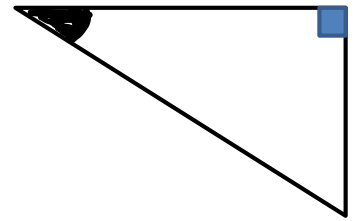
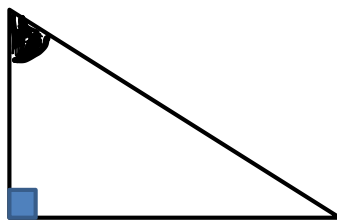
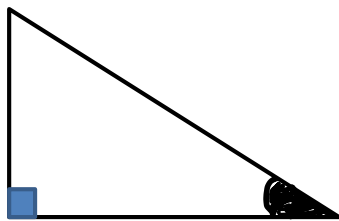
b.  $\cos(m) = \frac{10}{25}$

c.  $\tan(m) = \frac{15.7}{10.3}$

### Labelling a Right Triangle

The 3 sides of a Right Triangle are labelled as: **HYPOTENUSE (H)**    **OPPOSITE (O)**    **ADJACENT (A)**

The name of the side is determined by the angle that will be used in the calculations.



## Assignment

I. Use your calculator to find the values of the following to **3 decimal places**:

a.  $\sin(20^\circ)$

b.  $\sin(43^\circ)$

c.  $\sin(18^\circ)$

d.  $\sin(73^\circ)$

e.  $\cos(20^\circ)$

f.  $\cos(43^\circ)$

g.  $\cos(18^\circ)$

h.  $\cos(73^\circ)$

i.  $\tan(20^\circ)$

j.  $\tan(43^\circ)$

k.  $\tan(18^\circ)$

l.  $\tan(73^\circ)$

II. Use your calculator to find the values of the following to **one decimal place**:

a.  $\sin^{-1}(0.866)$

b.  $\sin^{-1}\left(\frac{3}{8}\right)$

c.  $\cos^{-1}(0.5)$

d.  $\cos^{-1}\left(\frac{31}{52}\right)$

e.  $\tan^{-1}\left(\frac{35}{13}\right)$

f.  $\tan^{-1}(0.2835)$

g.  $\sin^{-1}(2.68)$

h.  $\cos^{-1}(3.54)$

III. Find the value of  $x$ .

a.  $\sin(20^\circ) = \frac{x}{15}$

b.  $\cos(30^\circ) = \frac{24}{x}$

c.  $\tan(63^\circ) = \frac{15.2}{x}$

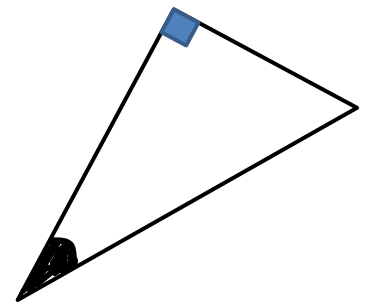
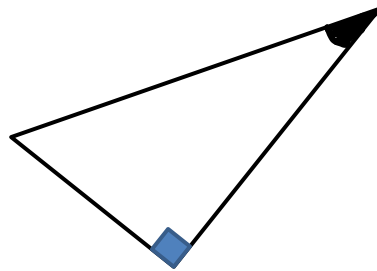
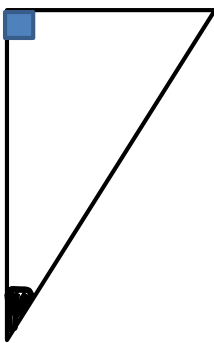
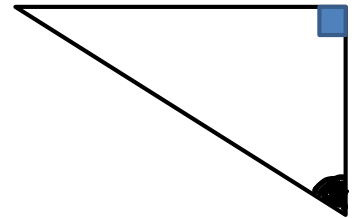
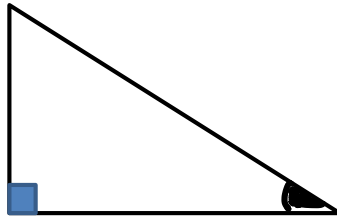
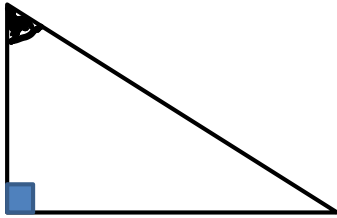
IV. Find the value of the angle,  $m$ .

a.  $\sin(m) = \frac{15}{30}$

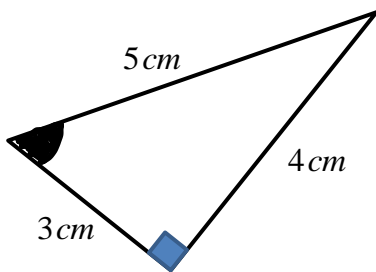
b.  $\cos(m) = \frac{1.6}{2}$

c.  $\tan(m) = \frac{157}{103}$

V. Label the sides of following triangles as: **HYPOTENUSE (H)**      **OPPOSITE (O)**      **ADJACENT (A)**



VI. A Right Triangle has the dimensions as given below. Find the values of the 3 ratios.



$$\frac{OPP}{HYP} =$$

$$\frac{ADJ}{HYP} =$$

$$\frac{OPP}{ADJ} =$$